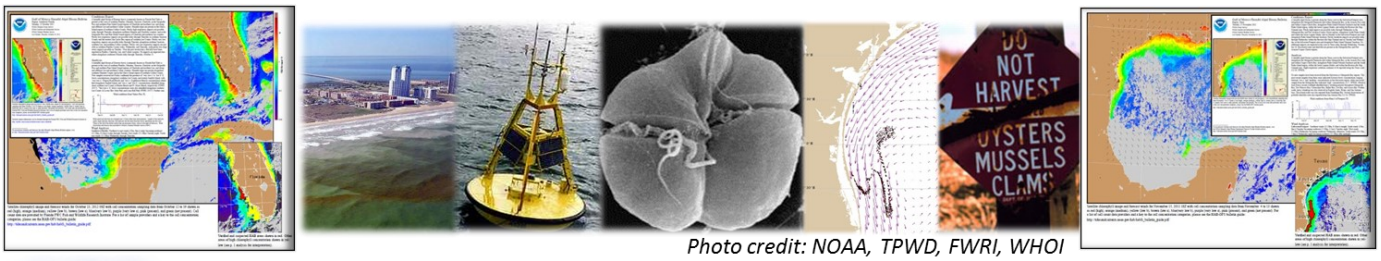

Photo credit: NOAA, TPWD, FWRI, WHOI

Issue 18 January 2017

NOAA HAB-OFS Newsletter

Welcome to the NOAA HAB-OFS Quarterly Newsletter. We are always happy to hear from you so please send your topic suggestions, questions, comments and feedback to hab@noaa.gov.

In this issue:

Lake Erie *Microcystis* Bloom, Smallest Since 2012, Comes to an End

As mentioned in our June 2016 newsletter, our CO-OPS HAB analysts have been working with scientists from the National Centers for Coastal Ocean Science (NCCOS) to transition the weekly Lake Erie experimental HAB bulletins to operations. In order to demonstrate CO-OPS's readiness to create operational bulletins in the 2017 bloom season, they were put to the test during this year's *Microcystis* bloom in Lake Erie. While NCCOS published the experimental bulletins, CO-OPS drafted practice bulletins.

This year the bloom first appeared in mid-July in Maumee Bay at the extreme western end of Lake Erie. Toxin concentrations remained relatively low throughout the bloom and only exceeded EPA recreational thresholds (6 mg/L) in scums which formed when winds were light. The bloom drifted to the north and east, eventually finding its way east of Point Pelee on the Ontario coast by the second week of August. The bloom continued to linger into October and finally began to dissipate as the Lake's water temperatures decreased below 60° F (15° C), the temperature threshold in which *Microcystis* can no longer bloom, on October 24th.

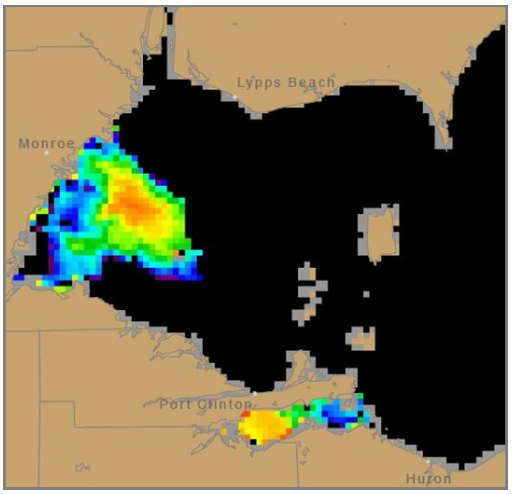

Figure 1. *MODIS Aqua imagery from 7/23/16 showing the western basin with the Microcystis bloom extending eastward from Maumee Bay. Source: July 25, 2016 Experimental Lake Erie HAB Bulletin.*

The 2016 bloom will go down on record as being the smallest in recent years, although any beachgoers and boaters impacted by the noxious algae won't take much comfort in that fact. At the conclusion of the bloom, NOAA and our academic partners analyzed the bloom as part of a "Bloom Severity Index". The index assigns a value to the magnitude of the bloom by measuring the bloom's 30-day biomass surrounding the peak of the bloom. The pre-season forecast, completed by assessing the total bioavailable phosphorus from the Maumee River, called for a median index value of 5.5. By season's end the bloom was classified as 'mild' with a severity of 3.2, lower than expected but still within the seasonal forecast model's expectation.

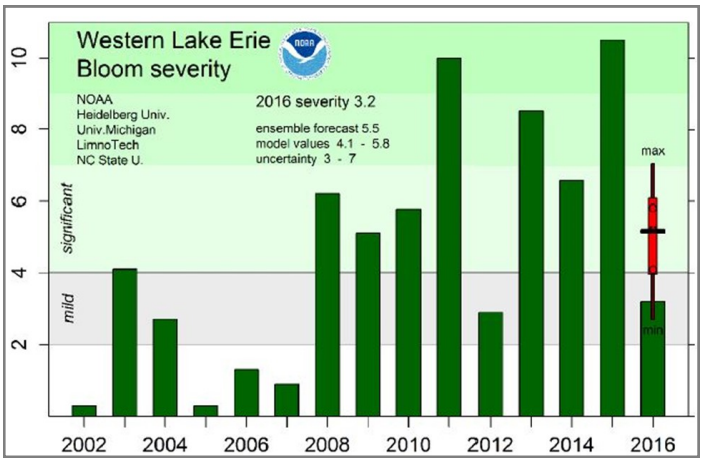

Figure 2. *The 2002-2016 bloom severity index. The red quartile box plot indicates the pre-season forecast made for 2016. The bloom severity index value for 2016 was 3.2. Source: November 1, 2016 Experimental Lake Erie HAB Bulletin.*

Now that the Lake Erie bloom season is over, the CO-OPS HAB team will be busy completing the transition to operations in time for the 2017 Lake Erie HAB season. The team recently completed an assessment that indicated that their test forecasts performed comparably to NCCOS forecasts at predicting the actual observations. This means that CO-OPS received the training needed to be ready to hit the ground running next season.

(continued on page 2)

HAB Team Says Farewell to Kate Derner and Welcomes Jaclyn Ludema

After serving on the HAB team for 7 years and working for CO-OPS for 10 years, Kate Derner is off on her next adventure, a year-long trek across the globe with her husband. Our team already misses her, but we wish her well on her journey. You can read more about Kate in her bio in the March 2014 newsletter.

Figure 3. *Kate Derner on the summit of Kala Pattar with Mt. Everest and Nuptse in the background.*

Jaclyn Ludema is the newest member of the HAB analyst team. Her interest in HABs was sparked during her previous position as a biological scientist for the Florida Fish and Wildlife Commission's (FWC) manatee program. Working for FWC, Jaclyn assisted in numerous manatee rescues, research projects, carcass recoveries and necropsies. The negative impacts of HABs were gravely apparent to Jaclyn during the 2012-2013 Manatee Brevetoxicosis Unusual Mortality Event (UME) in southwest Florida, and the simultaneous UME in central east Florida. During these UMEs, Jaclyn was tasked with collecting HAB samples- which were used by FWC as well as our own analysts on the CO-OPS HAB Team.

Figure 4. *Jaclyn Ludema holding a rescued baby manatee.*

After the UMEs ended, she was motivated to continue her education with a Masters of Environmental Science and Policy from Johns Hopkins University. During her graduate program Jaclyn was able to work remotely in Fairbanks, Alaska. While experiencing the strange and beautiful Land of the Midnight Sun, she volunteered for the US Fish and Wildlife Service, managed a nutrition store, fostered rescue huskies and completed her degree. Now back in the "lower 48", Jaclyn is thrilled to join the CO-OPS HAB team. Her combined experience and education makes her a valuable asset. She looks forward to serving the HAB community.

Texas Bloom Ends, While Southwest Florida Bloom Continues

As noted in the September 2016 newsletter, the bloom in Texas developed over the Labor Day weekend with 'medium' concentrations of *Karenia brevis* identified by the Imaging FlowCytobot at Port Aransas, prompting additional sampling that showed the presence of the bloom along the Padre Island National Seashore (PINS) region on September 6. Over the next few weeks, patches of the bloom were visible in ensemble satellite imagery moving south into Mexico. Through mid-October, slight to moderate respiratory irritation was reported by people working to collect water samples, but by late October into November concentrations decreased. By the bulletin on November 10, the *K. brevis* concentrations ranged only up to 'very low a' and were no longer causing impacts, marking the end of the 2016 bloom season in Texas!

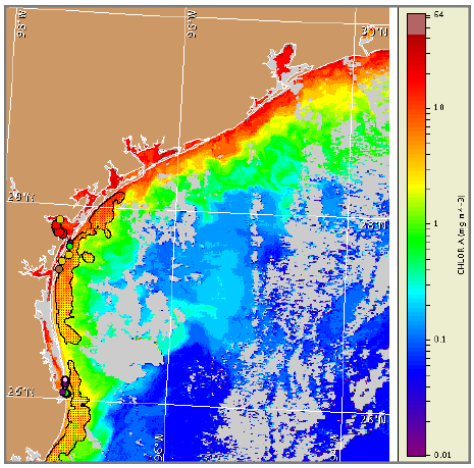

Figure 5. *MODIS Aqua (10/15) highlighting extent of the bloom. Source: October 17, 2016 Texas HAB Bulletin*

Meanwhile, the southwest Florida bloom is continuing to impact the Gulf Coast and bay regions from Pinellas to Sarasota counties. Predominantly offshore winds this season have decreased respiratory irritation at the coast much of the time. Last month slight to moderate, and even some intense impacts, and associated fish kills were being reported from Manatee, Sarasota, Charlotte, and Lee counties where the highest concentrations were lingering. Cell concentrations have been decreasing in the past two weeks.

Many Thanks to our Partners and Data Providers

http://tidesandcurrents.noaa.gov/hab/contributors.html

This newsletter was written and designed by:

NOAA/National Ocean Service

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National Centers for Coastal Ocean Science (NCCOS)

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